In re TON ET AL., Application No. 09/776,794
Amendment D

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-35

Claim 36 (previously presented): A computer-implemented method for dynamic allocation and management of semaphores for accessing shared resources, the method comprising:

maintaining a resource lock table data structure indicating for each of a plurality of resources an allocated semaphore of a plurality of semaphores;

maintaining a semaphore allocation table data structure indicating the currently used semaphores for said resources of a plurality of semaphores; and

in response to a received resource active read request for a particular resource from a first task, locating an indication of the particular resource in a particular entry in the resource lock table structure, the particular entry identifying that the particular resource is currently read locked using a first semaphore; and in response: getting a second semaphore from a pool of free semaphores, updating a semaphore entry in the semaphore allocation table to reflect that the particular resource is associated with the second semaphore in addition to the first semaphore, updating the particular entry in the resource lock table structure to reflect an additional read lock associated with the particular resource, and signaling to the first task that the particular resource is available.

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Claim 37 (previously presented): A computer-implemented method for dynamic allocation and management of semaphores for accessing shared resources, the method comprising:

maintaining a resource lock table data structure indicating for each of a plurality of resources an allocated semaphore of a plurality of semaphores;

maintaining a semaphore allocation table data structure indicating the currently used semaphores for said resources of a plurality of semaphores; and

in response to a received resource request for a particular resource from a first task, locating an indication of the particular resource in a particular entry in the resource lock table structure, the particular entry identifying that the particular resource is currently associated with a first semaphore; and in response: getting a second semaphore from a pool of free semaphores, updating a semaphore entry in the semaphore allocation table to reflect that the particular resource is associated with the second semaphore in addition to the first semaphore, and signaling to the first task the availability of the particular resource.

Claim 38 (previously presented): The method of claim 37, wherein the received resource request is for read access to the particular resource; and the method further comprises updating the particular entry in the resource lock table structure to reflect an additional read lock associated with the particular resource.

Claim 39 (previously presented): The method of claim 37, where the second semaphore is associated with a timeout value; and wherein said signaling includes signaling to the first task that the particular resource is available before the end of a timeout period corresponding to the timeout value.

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Claim 40 (previously presented): The method of claim 37, where the second semaphore is associated with a timeout value; and wherein the method further comprises: in response to the end of a timeout period corresponding to the timeout value: returning the second semaphore to the pool of free semaphores, updating the semaphore entry in the semaphore allocation table to reflect that the particular resource is no longer associated with the second semaphore, and signaling to the first task that the particular resource is not available.

Claim 41 (previously presented): The method of claim 40, where the received resource requests is for read access to the particular resource; and the method further comprises: updating the particular entry in the resource lock table structure to reflect an additional read lock associated with the particular resource; and in response to the end of a timeout period corresponding to the timeout value, updating the particular entry in the resource lock table structure to reflect one less read lock associated with the particular resource.

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Claim 42 (new): An apparatus comprising one or more processors and memory, wherein the memory stores one or more instructions that, when executed by said one or more processors, perform operations for dynamic allocation and management of semaphores for accessing shared resources, said operations comprising:

maintaining a resource lock table data structure indicating for each of a plurality of resources an allocated semaphore of a plurality of semaphores;

maintaining a semaphore allocation table data structure indicating the currently used semaphores for said resources of a plurality of semaphores; and

in response to a received resource active read request for a particular resource from a first task, locating an indication of the particular resource in a particular entry in the resource lock table structure, the particular entry identifying that the particular resource is currently read locked using a first semaphore; and in response: getting a second semaphore from a pool of free semaphores, updating a semaphore entry in the semaphore allocation table to reflect that the particular resource is associated with the second semaphore in addition to the first semaphore, updating the particular entry in the resource lock table structure to reflect an additional read lock associated with the particular resource, and signaling to the first task that the particular resource is available.

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Claim 43 (new): An apparatus comprising one or more processors and memory, wherein the memory stores one or more instructions that, when executed by said one or more processors, perform operations for dynamic allocation and management of semaphores for accessing shared resources, said operations comprising:

maintaining a resource lock table data structure indicating for each of a plurality of resources an allocated semaphore of a plurality of semaphores;

maintaining a semaphore allocation table data structure indicating the currently used semaphores for said resources of a plurality of semaphores; and

in response to a received resource request for a particular resource from a first task, locating an indication of the particular resource in a particular entry in the resource lock table structure, the particular entry identifying that the particular resource is currently associated with a first semaphore; and in response: getting a second semaphore from a pool of free semaphores, updating a semaphore entry in the semaphore allocation table to reflect that the particular resource is associated with the second semaphore in addition to the first semaphore, and signaling to the first task the availability of the particular resource.

Claim 44 (new): The apparatus of claim 43, wherein the received resource request is for read access to the particular resource; and said operations comprise: updating the particular entry in the resource lock table structure to reflect an additional read lock associated with the particular resource.

Claim 45 (new): The apparatus of claim 43, where the second semaphore is associated with a timeout value; and wherein said signaling includes signaling to the first task that the particular resource is available before the end of a timeout period corresponding to the timeout value.

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Claim 46 (new): The apparatus of claim 43, where the second semaphore is associated with a timeout value; and wherein said operations comprise: in response to the end of a timeout period corresponding to the timeout value: returning the second semaphore to the pool of free semaphores, updating the semaphore entry in the semaphore allocation table to reflect that the particular resource is no longer associated with the second semaphore, and signaling to the first task that the particular resource is not available.

Claim 47 (new): The apparatus of claim 46, where the received resource requests is for read access to the particular resource; and said operations comprise: updating the particular entry in the resource lock table structure to reflect an additional read lock associated with the particular resource; and in response to the end of a timeout period corresponding to the timeout value, updating the particular entry in the resource lock table structure to reflect one less read lock associated with the particular resource.

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